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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,980	06/06/2002	Harald Grewe	(H)01PH0405USP	5962

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EXAMINER

AMRANY, ADI

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

34

Office Action Summary

Application No.

10/018,980

Applicant(s)

GREWE ET AL.

Examiner

Adi Amrany

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-23 and 25-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-23 and 25-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicants' arguments filed August 17, 2006 have been fully considered but they are not persuasive. Applicants amended independent claim 21 to include the limitation of "a connecting device for connecting the supply voltage input *in series* to the supply voltage output." Buhring discloses connecting the supply voltage input in series to the supply voltage output (column 9, lines 13-16). This connection of two points, in this case, the input node and output node of the apparatus, creates a *series* connection. Claims 22-23 and 25-42 were not amended and are rejected under the same references as in the non-final rejection (March 22, 2006). The series connection of the supply voltage input and output (claim 21) is distinguished from the series connection of modules (claim 32). Both series connections are rejected over the prior art, as discussed below.

In response to the non-final rejection under 35 U.S.C. §102, applicants argue that Buhring does not show units that are connected with the power supply in series (Remarks, page 1, lines 14-17). This argument is not persuasive, as the specification provides motivation for applying the Buhring configuration to anticipate the limitations of claim 21.

Buhring discloses an "apparatus (figure 11, item 17), for modules (items 14-16) connected to a supply voltage in series," as shown in figure 3 of the present application. In this arrangement, each module is "connected to a supply voltage in series," while the modules are in parallel to each other. The specification, in the discussion of figure 1,

Art Unit: 2836

states, "a plurality of bus users are connected to their supply voltage in series" (paragraph 24, lines 3-4). Then, in the discussion of figure 3, the specification states, "three inventive apparatuses, and also the associated bus users, are connected to the supply voltage in series (paragraph 32, lines 3-4). Applicants use the term "in series" to describe the connections of bus users (modules 2, 2', 2'') of both figures 1 and 3.

The recited limitations of claim 21 are interpreted as the embodiment shown in figure 3 and discussed in paragraph 32, and are therefor, anticipated by Buhning.

Claim Objections

2. Claims 32, 35 and 39 are objected to because they improperly attempt to incorporate claimed subject matter from preceding claims. These claims will be treated as independent claims. Further, claims 35 and 39 are method claims, which improperly depend on limitations in an apparatus claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 21-23, 25-26, 28-31 and 35-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Buhring (US 6,097,761).

With respect to claim 21, Buhring discloses a system and method for the transmission of power and data having an apparatus (figures 11-12, item 17) for modules (figure 11, items 14,15,16) connected to a supply voltage in series in a control and data transmission installation (figures 11-12, item 17; column 2, lines 38-63; column 3, lines 15-32), comprising:

only one supply voltage input (figure 11, item 11; column 8, lines 15-19)
and an associated voltage output (figure 11, item 11a);

a connecting device (figures 12-16, item 60) for connecting the supply voltage input *in series* (column 9, lines 13-16) to the supply voltage output in response to an ascertaining device (figures 12-16, item 61; column 9, lines 16-19) for ascertaining at least one electrical variable at the supply voltage output (column 8, lines 15-46);

wherein the apparatus is arranged to detect a flowing supply current (column 13, lines 52-67; column 14 lines 1-45).

With respect to claim 22, Buhring discloses the apparatus as claimed in claim 21, and further discloses the apparatus is arranged for use with a bus in an automation bus system (figure 11; column 8, lines 15-32).

With respect to claim 23, Buhring discloses the apparatus as claimed in claim 21, and further discloses the ascertaining device is arranged to ascertain at least one

electrical variable for detecting at least one of an electric load and a short circuit (figures 12-16, item 61; column 13, lines 52-67; column 14, lines 1-45).

With respect to claim 25, Buhring discloses the apparatus as claimed in claim 21, and further discloses the connecting device is a semiconductor switch (figures 13-16, item 60; column 8, lines 46-59).

With respect to claim 26, Buhring discloses the apparatus as claimed in claim 22, and further discloses the apparatus comprises a bus connection device (figure 12, item 17; column 8, lines 33-34) for connection to an automation bus system (figure 11; column 8, lines 15-32).

With respect to claim 28, Buhring discloses the apparatus as claimed in claim 21, and further discloses the apparatus has separate and electrically independent supply voltage inputs (figure 11, item 11) and outputs (figure 11, item 11a) for logic and for actuator equipment/sensor equipment (figures 12-13) of an associated module.

With respect to claim 29, Buhring discloses the apparatus as claimed in claim 21, and further discloses the apparatus comprises an associated module (figure 11, items 14, 15, 16; column 8, lines 15-19) in a control and data transmission installation for a bus user in an automation bus system (column 8, lines 15-32). Buhring discloses that each associated module is present between two apparatuses.

With respect to claim 30, Buhring discloses the apparatus as claimed in claim 29, and further discloses the associated module is connected to the supply voltage essentially downstream of the connecting device (figure 11, item 15). With one associated module present between two apparatus, it is inherent that the associated

Art Unit: 2836

module is *essentially downstream* of the connecting device of the corresponding apparatus.

With respect to claim 31, Buhring discloses the apparatus as claimed in claim 21, and further discloses the apparatus is arranged to detect a ground fault (column 2, lines 38-63). The Buhring apparatus detects a short circuit, which includes detection of a ground fault.

With respect to claim 35, Buhring discloses a method for connecting and operating an apparatus, comprising the method steps of:

applying a supply voltage to the supply voltage input of the apparatus (figure 11, item 11; column 8, lines 15-26);

detecting an electrical load or a short circuit at the supply voltage output (column 8, lines 28-32 and 39-41); and

controlling the connecting device for connecting the supply voltage input to the associated supply voltage output in response to a detected electrical load or short (column 8, line 60 to column 9, line 40).

With respect to claim 36, Buhring discloses the method as claimed in claim 35, and further discloses controlling the connecting device comprises:

comparing the detected load with a predetermined value (figure 12, item 61; column 8, lines 39-41 and 60-64); and

connecting the supply voltage input to the associated voltage output if the detected load does not exceed the predetermined value (column 9, lines 26-40).

With respect to claim 37, Buhring discloses the method as claimed in claim 35, and further discloses controlling the connecting device comprises: connecting the supply voltage input to the associated supply voltage output if no short circuit has been detected (column 9, lines 13-25).

With respect to claim 38, Buhring discloses the method as claimed in claim 35, and further discloses:

detecting a flowing supply current (column 8, lines 39-45 and 60-64); and
breaking the connection between the supply voltage input and the associated supply voltage output if the detected supply current exceeds a predetermined value (column 9, lines 26-40).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Buhring in view of Ying (US 6,147,967).

Buhring discloses the apparatus as claimed in claim 22, but does not expressly disclose the apparatus is of a design to be configurable at least one of manually and via the automation bus system, and has at least one memory device for configuration storage.

Ying discloses a method and apparatus (figure 6, items 603 and 642; figure 7, item 721; column 13, lines 52-67) for modules (figures 7A-8G, items 703 and 705) connected to a supply voltage in series (figures 7A-8G, item 704; column 4, lines 22-32) for fault isolation of an automation bus system (column 1, lines 6-39; column 2, lines 36-53) having a voltage supply input (figures 7A-8G), a voltage supply output (figures 7A-8G), a relay for connecting the supply voltage input *in series* to the supply voltage output (figure 6, items 644a, 644b; figures 7A-8G, item 712; column 14, lines 3-9 and 22-32), in response to an ascertaining device (figure 3, item 315; figure 6, items 612, 622; column 5, lines 34-67; column 10, lines 9-34; column 13, lines 60-67; column 14, lines 1-21) for ascertaining at least one electrical variable for detecting a short circuit;

and the apparatus (figure 6, items 603 and 642) is configurable manually and through the automation bus system having a central processing unit and a memory (figure 6, items 612, 618; column 3, lines 34-64; column 10, lines 9-34).

Ying further discloses that the supply voltage input is connected *in series* to the supply voltage output (figures 7a-8g, items 712, 721). The connecting device (item 712) connects the voltage from the input (left side of 721) to the output (right side of 721). As discussed above, the connection of two points is a *series connection*.

Buhring and Ying are analogous because they are from the same field on endeavor, namely switching systems for power and data transmissions. At the time of the invention by applicants, it would have been obvious to one skilled in the art to modify Buhring to include separation units that have a central processing unit and a memory and are configurable manually and through the automation bus system such as

Art Unit: 2836

that taught by Ying, in order to allow sections of the bus system to be shutdown for maintenance purposed in addition to when fault occurs (Ying, column 2, lines 5-20).

7. Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buhring, in view of Prendel (EP 0551114 A1). Citations from Prendel '114 used in this rejection are from the corresponding English language translation.

Buhring discloses a control and data transmission installation (figures 11-12; column 2, lines 38-63; column 3, lines 15-32), comprising at least one apparatus (figures 11-12, item 17; column 8, lines 33-46), comprising at least one associated module (figure 11, items 14,15,16) that is electrically connected to the supply voltage (figure 11, items 11, 12; column 8, lines 15-26) with at least one other module (column 8, lines 26-28), the apparatus being connected upstream of the other module.

Buhring does not expressly disclose the control and data transmission installation is electrically connected to the supply voltage *in series* with at least one other module.

Prendel discloses a system for transmitting data and power between a multitude of base stations (figure 1, item 1) that are arranged in a series chain (pages 3-4). At the time of the invention by applicants, it would have been obvious to a person of ordinary skill to modify Buhring to include connecting the stations in a series chain as disclosed in Prendel in order to ensure a fault-free mode of operation (Prendel, page 6).

With respect to claim 33, Buhring and Prendel disclose the control and data transmission installation as claimed in claim 32, and Prendel further discloses a serial automation bus (figure 1; page 1).

8. Claims 34 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buhring, in view of Prendel, and in further view of the EN 50254 standard.

Buhring and Prendel disclose the control and data transmission installation as claimed in claim 33. Buhring, in view of Prendel, further discloses at least a first module (figure 11, item 15) of the modules (figure 11, items 14-16) connected to the supply voltage in series comprises an associated apparatus (figure 11, item 17) in a local bus section or bus spur (figure 11; column 8, lines 15-32), but do not expressly disclose the automation bus comprises a bus in accordance with EN 50254.

It would have been obvious to one skilled in the art to have modified the control and data transmission installation as disclosed in Buhring and Prendel to comply with the EN 50254 standard, in order to allow the automation bus system to be operated and sold in Europe.

With respect to claim 39, Buhring, in view of Prendel, discloses a method for connecting and operating series-connected (Prendel, figure 1) apparatuses (Buhring, figure 11, item 17; column 8, lines 33-46).

It would have been obvious to connect the apparatuses in each case as claimed in claim 34 (based on the EN 50254 standard) for the reasons provided in the rejection of claim 34.

With respect to claim 40, Buhring, Prendel, and the EN 50254 standard disclose the method as claimed in claim 39, and Buhring further discloses the connection takes place automatically (column 8, line 60 to column 9, line 40) or is controlled via the automation bus.

9. Claims 41-42 rejected under 35 U.S.C. 103(a) as being unpatentable over Buhring, Prendel and the EN 50254 standard, in further view of Ying.

Buhring, Prendel and the EN 50254 standard disclose the method as claimed in claim 39, but do not expressly disclose an apparatus connected only partially outputs an error message to indicate a short circuit or an overload at its voltage supply output, the error message being output to an indicator device or via the automation bus in order to control the automation bus system.

Ying discloses a method and apparatus for connecting and operating apparatuses in a control and data transmission installation (figure 6, items 603 and 642; figure 7, item 721; column 13, liens 52-67), and further discloses that an error message is output to the automation control bus in order to control the bus system when an apparatus indicates a short circuit (column 11, liens 36-62).

Buhring, Prendel, the EN 50254 standard and Ying are analogous because they are from the same field on endeavor, namely switching systems for power and data transmissions. At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the method for connecting and operating series-connected apparatuses in a control and data transmission installation disclosed in Buhring, Prendel and the EN 50254 standard with the separation units that have central processing units and a memory, and output an error message to indicate a short circuit as disclosed in Ying in order to alert maintenance personnel of the short circuit.

The method and apparatus disclosed by Ying is explained in detain in the rejection of claim 27.

With respect to claim 42, Buhring, Prendel, the EN 50254 standard and Ying disclose the method as claimed in claim 41, and Ying further discloses the error message output via the automation bus comprises at least one data item identifying the apparatus (column 10, lines 16-33).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. While reference numbers, figures, and cited locations in the prior art are provided, it is respectfully requested that applicants consider the prior art references in their entirety.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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